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solid ground, and advance should be made from fact to fact only. Popular literature is quite full enough of fanciful conceptions of plants without additions from the laboratory.

The entire paper, however, will be interesting reading to that class of biologists who profess to see in plants a series of degraded forms, which began retrogression on the acquisition of the habit of fixation.—D. T. MACDOUGAL.

MINOR NOTICES.

THE CŒUR D'ALENE mountains of Idaho have long been known as interesting botanical ground. All of northern Idaho presents that combination of conditions which has resulted in an unusual flora. During the summer of 1895 Mr. John B. Leiberg undertook a botanical survey of the Cœur d'Alenes, under the direction of the Division of Botany, of the Department of Agriculture. This survey was the more significant and fruitful as Mr. Leiberg had lived in northern Idaho for about ten years, and was already very familiar with the region. A contribution³ just published gives us some of the results, dealing with matters both biologic and economic, as follows: topography, drainage, climate, mineral deposits, agricultural capacity, agricultural products, grazing lands, native food plants, utilization of water supply, forest resources, forest zones, forest destruction, burned areas, forest preservation, and a new system of timber protection.—J. M. C.

RECENT BULLETINS from the experiment stations embrace a variety of botanical subjects. E. J. Durand (Cornell no. 125) describes a disease of currant canes observed in New York and New Jersey not before noted in this country. Three fungi were found: *Tubercularia vulgaris*, *Nectria cinnabarina* and *Pleonectria berolinensis*, of which the first two are the chief or only cause of the disease, and also are undoubtedly forms of one species. Little was accomplished with cultures and inoculations. A. S. Hitchcock (Kans. no. 62), in thirty-four pages and ten plates, gives much information about two species of corn smut (*Ustilago*). Successful infection experiments were made. A. D. Selby (Ohio no. 73) briefly describes and illustrates a number of fungous diseases of the forcing house and garden. R. H. Price (Texas no. 39) gives a general account of the peach, including notes of botanical interest on diseases and on the five classes. A popular account of bacteria and their study is presented by C. E. Marshall (Mich. no. 139) in thirty-seven pages. Three troublesome weeds: *Hieracium aurantiacum*, *Daucus Carota* and *Solanum rostratum*, are briefly described by F. L. Harvey (Me. no. 32). Geo. Vestal gives a popular account of the care and handling of seeds (N.

³LEIBERG, JOHN B.—General report on a botanical survey of the Cœur d'Alene mountains in Idaho during the summer of 1895. Contrib. Nat. Herb. 5: 1-85. 1897.

M. no. 20). Attention is called to the value of mushrooms and puffballs for food by L. M. Underwood (Ala. no. 73) in ten pages. Specific description is accorded *Agaricus campestris*, *Amanita Cæsarea*, said to be common in Alabama, and its poisonous relative *A. muscaria*. A chemical study of the Irish potato by T. L. Watson (Va. nos. 55 and 56) contains some facts of interest to vegetable physiologists.—J. C. A.

NOTES FOR STUDENTS.

MR. THEO. HOLM, in the continuation of his morphological and anatomical studies in the Cyperaceæ, has recently investigated *Carex Fraseri*,⁴ a very rare and local sedge with an appearance so peculiar as to distinguish it easily from other species of *Carex*. His results still further emphasize this distinctness. "The monopodial ramifications of its rhizome, with its single assimilating leaf destitute of sheath, ligule, epidermal expansions and bulliform cells, in connection with its flat and hollow stem, besides the uninterrupted pericambium of the root, constitute a structure that seems almost unique in the family of the Cyperaceæ."—J. M. C.

AN INTERESTING CONTRIBUTION to the subject of rhythm in plants is afforded by L. Jost's recent work on *Mimosa*.⁵ This plant is one of the few known examples in which etiolated leaves are irritable, and which exhibit periodic movements. In the experimental work etiolated leaves were obtained by enclosing the tip of a branch in a dark chamber. The periodic movements of the enclosed etiolated leaves were not induced by impulses from the free leaves, since artificial alterations in the periods of illumination and darkness of the latter produced no variations in the movements of the enclosed organs. The periodic movements of green as well as etiolated leaves of *Mimosa* are due largely to variations in temperature. Rise in temperature causes the leaves to assume the night position, and a fall in temperature the day position; exactly the reverse of the relations of flowers to temperature. This fact is remarkable in view of the fact that leaves and flowers react alike to changes in the intensity of light.—D. T. MACDOUGAL.

MR. T. CHALKLEY PALMER has succeeded in demonstrating, by a very simple device, that diatoms absorb carbon dioxide and exhale oxygen under the influence of light. While these indications of photosyntax were not needed to prove that diatoms are plants, the simplicity of the device makes the demonstration an easy one to employ in illustrative work. Advantage is taken of the fact that an ordinary aqueous solution of haematoxylin loses its

⁴ Am. Jour. Sci. IV. 3 : 121-128. *pl.* 4. 1897.

⁵ Ueber die periodischen Bewegungen der Blätter von *Mimosa pudica* in dunkeln Raume. Bot. Zeit. 55 : 1 Abth. Hft. VI, Feb. 16, 1897.